This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A method for improving cardiac performance associated with a current set of N pacing parameters by adjusting the N cardiac pacing parameters, where N is an integer greater than one, the method comprising the steps of:

(a) determining cardiac performance associated with the current set of N pacing parameters;

(b) repeating steps (c) through (e) for i = one to N, where i represents which of the N pacing parameter is being adjusted;

(c) incrementing an i^{th} pacing parameter in the current set of N pacing parameters based on a corresponding i^{th} increment value to thereby produce an i^{th} set of test pacing parameters;

(d) determining a cardiac performance associated with the i^{th} set of test pacing parameters;

(e) updating the i^{th} increment value based on the cardiac performance associated with the i^{th} set of test pacing parameters; and

(f) updating the current set of N pacing parameters based on the updated increment values determined in step (e).

2. (Original) The method of claim 1, wherein step (e) comprises the step of updating the i^{th} increment value based on the difference between the cardiac performance associated with the current set of N pacing parameters and the cardiac performance associated with the i^{th} set of test pacing parameters.

3. (Original) The method of claim 1, wherein step (e) comprises the step of updating the i^{th} increment value based on:

the i^{th} increment value used in step (c), and

the difference between the cardiac performance associated with the current set of N pacing parameters and the cardiac performance associated with the i^{th} set of test pacing parameters.

4. (Original) The method of claim 3, wherein step (e) comprises the step of updating the i^{th} increment value based on the equation:

$$\delta_i \leftarrow k \bullet \delta_i \bullet (P_t - P_0)$$

where,

δ_i is the i^{th} increment value,

k is a predetermined constant scale factor,

P_t is a measure of the cardiac performance associated with i^{th} set of test pacing parameters as determined in step (d),

P_0 is a measure of the cardiac performance associated with the current set of N pacing parameters as determined in step (a), and

$\leftarrow$ denotes replacement.

5. (Original) The method of claim 1, wherein step (e) comprises the step of updating the i^{th} increment value based on one of the following equations:

(1) $\delta_i \leftarrow \delta_i$ if $P_t > P_0$, otherwise $\delta_i \leftarrow -\delta_i$, and

(2) $\delta_i \leftarrow \delta_i$ if $P_t \geq P_0$, otherwise $\delta_i \leftarrow -\delta_i$,

where,

δ_i is the i^{th} increment value,

P_t is a measure of the cardiac performance associated with i^{th} set of test pacing parameters as determined in step (d),

P_0 is a measure of the cardiac performance associated with the current set of N pacing parameters as determined in step (a), and

← denotes replacement.

6. (Original) The method of claim 1, further comprising the step of:

(g) repeating steps (a) through (f).

7. (Original) The method of claim 1, further comprising the step of:

(g) repeating steps (a) through (f) until each of the updated increment values determined in step (e) is less than a predetermined threshold value.

8. (Original) The method of claim 1, further comprising the step of:

(g) repeating steps (a) through (f) until a difference between the cardiac performance associated with the current set of N pacing parameters and the cardiac performance associated with the i^{th} set of test pacing parameters is less than a predetermined threshold value for all i between 1 and N inclusive.

9. (Original) A method for improving cardiac performance associated with a current set of N pacing parameters by adjusting the N cardiac pacing parameters, where N is an integer greater than 1, the method comprising the steps of:

(a) determining cardiac performance associated with the current set of N pacing parameters;

(b) incrementing the i^{th} pacing parameter in the current set of N pacing parameters based on an i^{th} increment value, to thereby produce an i^{th} set of test pacing parameters, wherein i is an integer between 1 and N inclusive;

(c) determining cardiac performance associated with the i^{th} set of test pacing parameters;

(d) updating the i^{th} increment value;

(e) updating the current set of N pacing parameters based on the updated i^{th} increment value determined in step (d); and

(f) repeating steps (a) through (e) for all N pacing parameters.

10. (Original) The method of claim 9, wherein step (d) comprises the step of updating the i^{th} increment value based on the difference between the cardiac performance associated with the current set of N pacing parameters and the cardiac performance associated with the i^{th} set of test pacing parameters.

11. (Original) The method of claim 9, wherein step (d) comprises the step of updating the i^{th} increment value based on:

the i^{th} increment value used in step (c), and

the difference between the cardiac performance associated with the current set of N pacing parameters and the cardiac performance associated with the i^{th} set of test pacing parameters.

12. (Original) The method of claim 11, wherein step (d) comprises the step of updating the i^{th} increment value based on the equation:

$$\delta_i \leftarrow k \bullet \delta_i \bullet (P_t - P_0)$$

where,

δ_i is the i^{th} increment value,

k is a predetermined constant scale factor,

P_t is a measure of the cardiac performance associated with i^{th} set of test pacing parameters as determined in step (d),

P_0 is a measure of the cardiac performance associated with the current set of N pacing parameters as determined in step (a), and

$\leftarrow$ denotes replacement.

13. (Original) The method of claim 9, wherein step (d) comprises the step of updating the i^{th} increment value based on one of the following equations:

(1) $\delta_i \leftarrow \delta_i$ if $P_i > P_0$, otherwise $\delta_i \leftarrow -\delta_i$, and

(2) $\delta_i \leftarrow \delta_i$ if $P_i \geq P_0$, otherwise $\delta_i \leftarrow -\delta_i$,

where,

δ_i is the i^{th} increment value,

P_i is a measure of the cardiac performance associated with i^{th} set of test pacing parameters as determined in step (d),

P_0 is a measure of the cardiac performance associated with the current set of N pacing parameters as determined in step (a), and

$\leftarrow$ denotes replacement.

14. (Original) The method of claim 9, further comprising the step of:

(g) repeating steps (a) through (f).

15. (Original) The method of claim 9, further comprising the step of:

(g) repeating steps (a) through (f) until each of the updated increment values determined in step (d) is less than a predetermined threshold value.

16. (Original) The method of claim 9, further comprising the step of:

(g) repeating steps (a) through (f) until a difference between the cardiac performance associated with the current set of N pacing parameters and the cardiac performance associated with the i^{th} set of test pacing parameters is less than a predetermined threshold value for all i between 1 and N inclusive.

17. (Original) A method for improving cardiac performance associated with a current set of N pacing parameters by adjusting the N cardiac pacing parameters, where N is an integer, the method comprising the steps of:

(a) determining cardiac performance associated with the current set of N pacing parameters;

(b) determining a random test set of N pacing parameters;

(c) determining cardiac performance associated with the test set of N pacing parameters; and

(d) replacing the current set of N pacing parameters with the test set of N pacing parameters if the cardiac performance associated with the test set of N pacing parameters is greater than the cardiac performance associated with the current set of N pacing parameters.

18. (Original) The method of claim 17, wherein step (b) comprises selecting N values from a plurality of predefined values, the selected N values comprising the random test set of N pacing parameters.

19. (Original) The method of claim 17, further comprising the step of:

(f) repeating steps (a) through (e).

20. (Original) The method of claim 17, further comprising the step of:

(f) repeating steps (a) through (e) until, for a predetermined number of consecutive times, the cardiac performance associated with the test set of N pacing parameters is not greater than the cardiac performance associated with the current set of N pacing parameters.

21. (Original) The method of claim 17, wherein step (b) comprises the steps of:

i. determining a set of N random increment values; and

ii. incrementing the pacing parameters in the current set of N pacing parameters using the set of N random increment values, to thereby produce the random test set of N pacing parameters.

22. (Original) The method of claim 21, wherein step (b)i. comprises selecting N values from a plurality of predefined values, the selected N values comprising the set of N random increment values.

23. (Original) The method of claim 21, further comprising the step of:

(f) repeating steps (a) through (e).

24. (Original) The method of claim 21, further comprising the step of:

(f) repeating steps (a) through (e) until, for a predetermined number of consecutive times, the cardiac performance associated with the test set of N pacing parameters is not greater than the cardiac performance associated with the current set of N pacing parameters.

ii. incrementing the pacing parameters in the current set of N pacing parameters using the set of N random increment values, to thereby produce the random test set of N pacing parameters.

25-37. (Withdrawn)